Safeguards Status

NSNFP Strategy Meeting

October 17, 2001
Augusta, GA

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INEEL

Commercial SNF is the Standard Against Which Attractiveness is Measured

- NRC's regulation, 10CFR73.51, is based on commercial SNF and vitrified waste at a repository
- DOE must demonstrate that accepted materials are no more attractive for theft than commercial SNF or vitrified waste, or provide additional graded safeguards

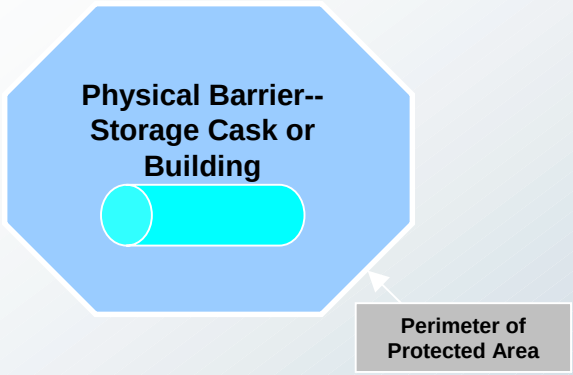
Four Intrinsic Characteristics Affect Relative Attractiveness

- Size, including overall weight
- Fissile material content
- Relative difficulty of separation, and
- Homogeneity and concentration of special nuclear material

Safeguard Options

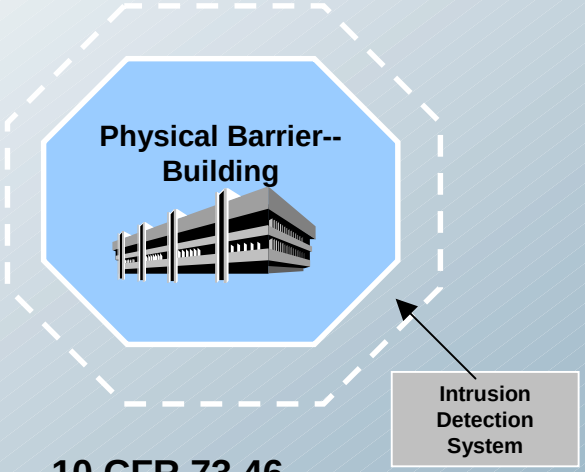
- Materials may be processed or packaged to satisfy the regulatory requirement inherent in 10CFR73.51
- RW may apply additional specific institutional measures that protect at the appropriate level

Regulations Allow a Graded Approach for Institutional Controls



10 CFR 73.51

- **2 physical barriers**
- **Continual surveillance**
- **Security organization conducting random patrols**
- **Identification and controlled lock system**



10 CFR 73.46

- **3 physical barriers**
- **SNM in tamper-indicating container**
- **Security organization--guards and tactical response team**
- **Confirm identity and quantity of SNF**
- **SNM in vault**

Activities/Schedule

- Rank fuels' separability relative to commercial SNF – (Aug, 01)
- Identify attractiveness of DOE SNF relative to commercial SNF – (Nov, 01)
- Identify candidate safeguard measures to decrease relative attractiveness – (Dec, 01)
- Compare treatment of DOE SNF and institutional measures – (Feb, 02)
- Document final results of study – (Mar, 02)
- Review results with NRC – (Apr, 02)
- Safeguard status meeting with NRC – EM, RW (May, 02)

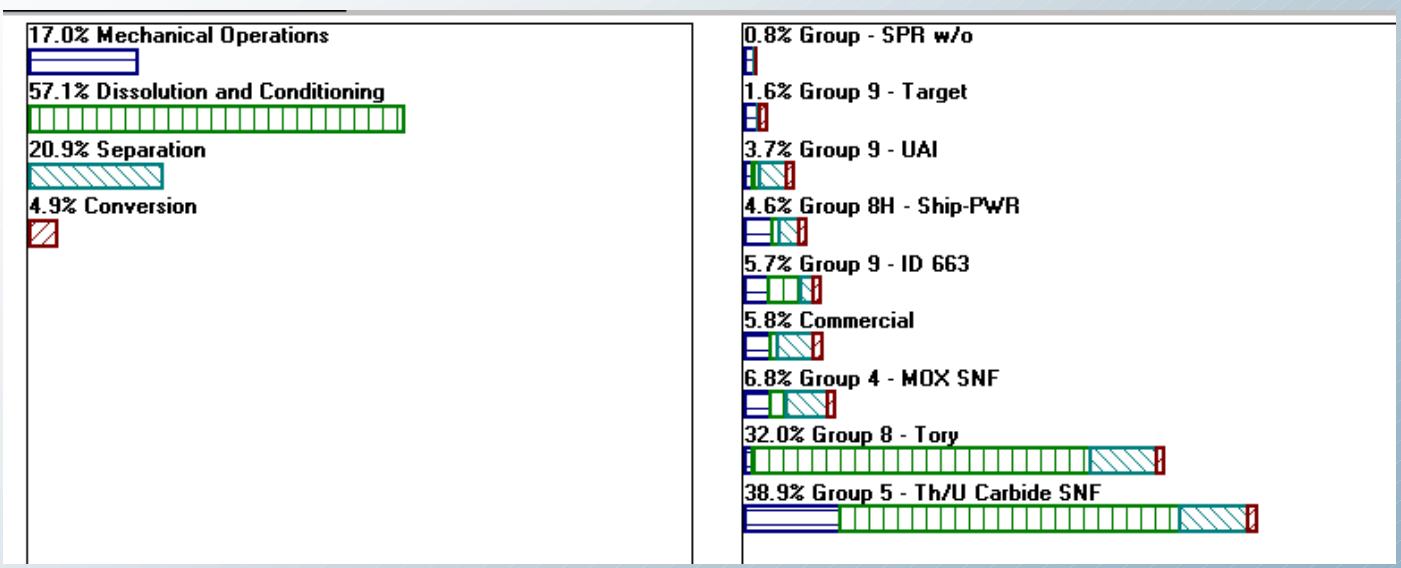
Separability Workshop Process

- Bin DOE fuels of similar chemical characteristics and select representative fuel for each group
- Define reference separations process for commercial fuel
- Identify process steps for separating fissile material from each representative DOE fuel
- Set up scales for ranking the fuels
- Score separability of each DOE fuel group

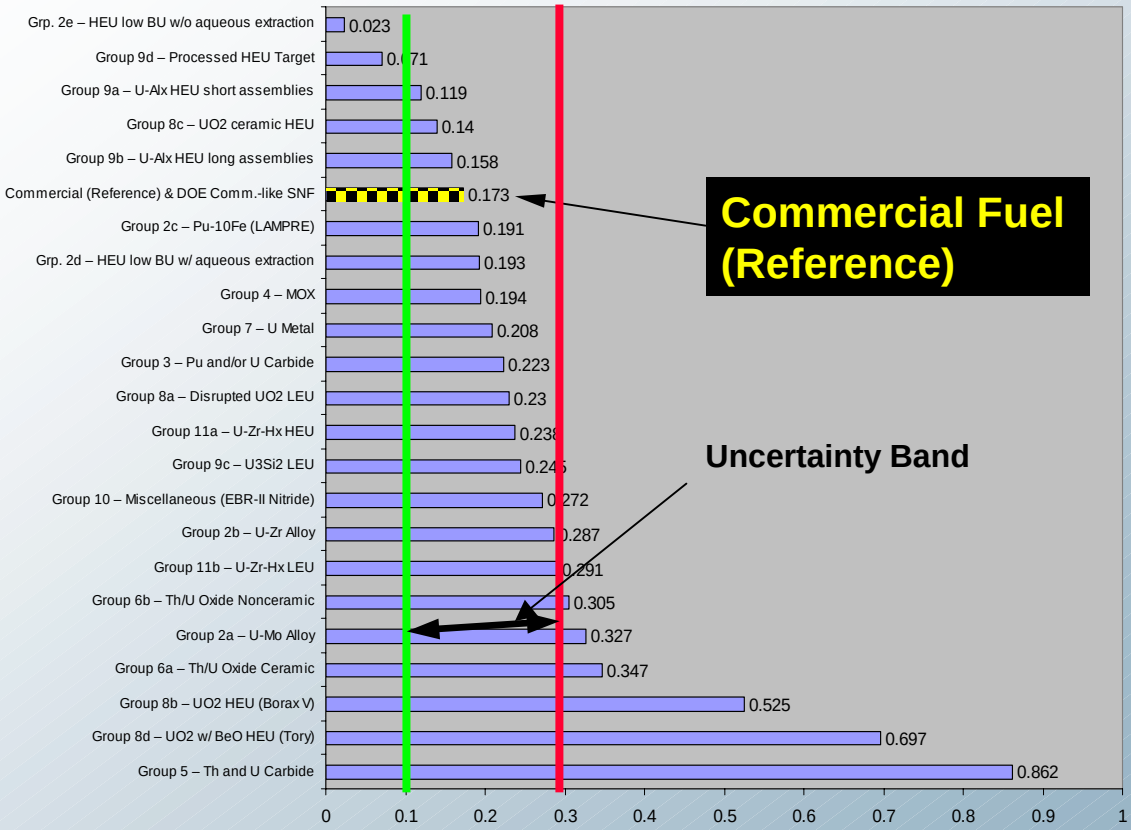
Separability SMEs

John Ackerman	ANL-E
Denny Fillmore	INEEL
Leroy Lewis	INEEL/retired
Mal McKibben	SRS/retired
Chris Phillips	BNFL
Wally Schulz	Hanford/retired
George Vandegrift	ANL-E
Ray Wymer	ORNL/retired

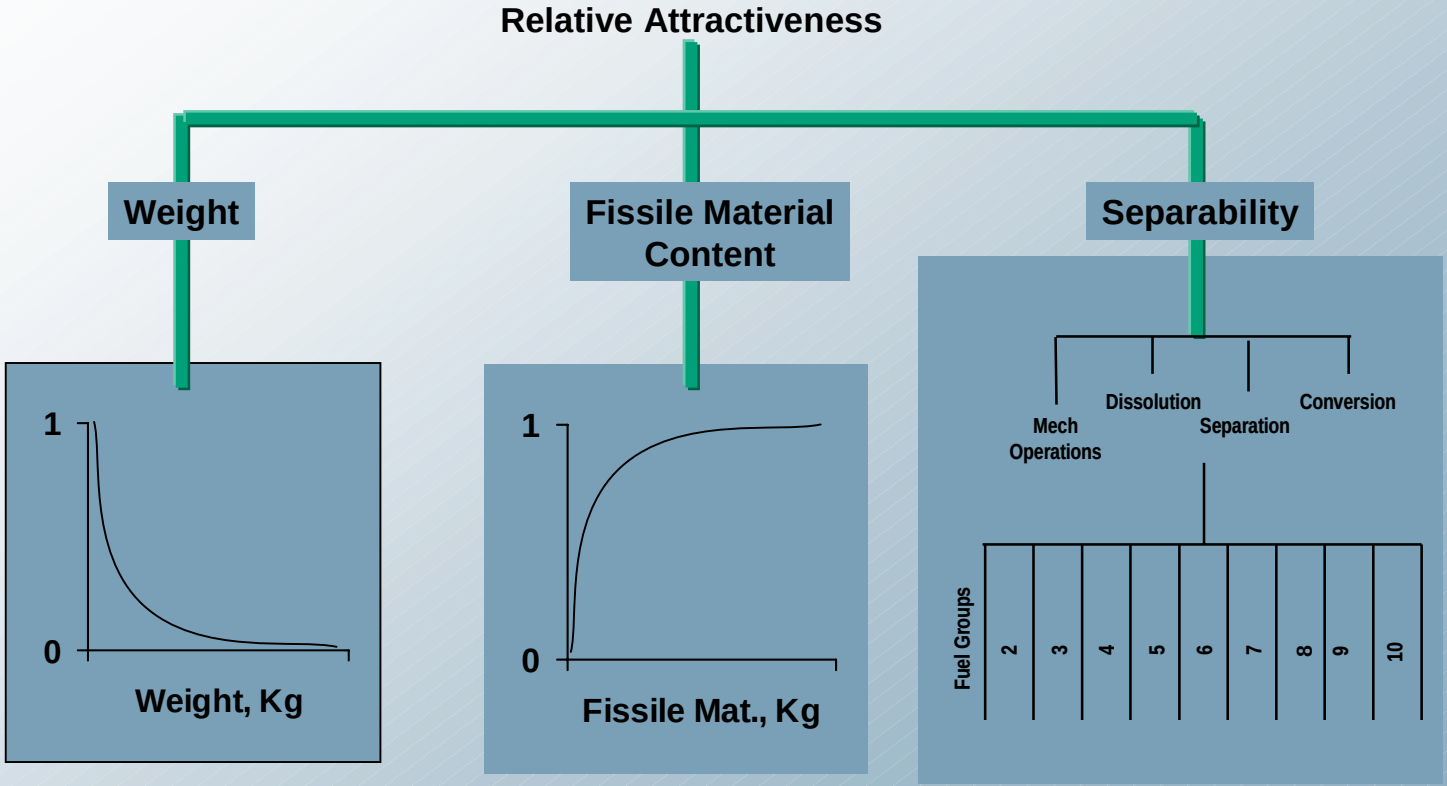
Relative Ranking of Four Process Steps



Results for the 22 DOE SNF Forms



Determining Attractiveness of DOE SNF



Summary

- Separability workshop completed
  - Representative fuels ranked
  - Process for extending results to other fuels documented
- Plans in place for completing S&S efforts in FY-02